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BRIEFER ARTICLES.

ADDITIONAL HOST PLANTS OF PLASMOPARA CUBENSIS.

In view of the fact that no certain information is at hand concerning the original host of *Plasmopara Cubensis* (B. & C.) Humph., except that it was a cucurbitaceous plant from Cuba, some interest may attach to an enumeration of the many new host species of the order Cucurbitaceæ upon which it has been collected about Wooster during 1898. While preparing for a study of this fungus in the extensive cucumber pickle fields of this county (Wayne) in which it had been signally destructive in 1897, the writer secured seeds of most of the usual species of the order and planted them, together with the cultivated varieties of cucumbers, muskmelons, watermelons, pumpkins, gourds, and squashes, in the pathological garden of the Ohio Experiment Station. The species represented the genera *Micrampelis*, *Sicyos*, *Abobra*, *Melothria*, *Cucurbita*, *Momordica*, *Cucumis*, *Lagenaria*, *Benincasa*, *Coccinea*, *Trichosanthes*, *Bryonopsis*, *Cyclanthera*, and *Mukia*, according to the seedsman's classification. A Madeira vine, *Boussingaultia baselloides*, was planted with the others. Unfortunately the seeds of *Sicyos*, *Micrampelis*, *Cucumis perennis* and *Momordica elaterium* did not germinate, and the plants of *Abobra viridiflora* and *Cucumis grossulariæformis* perished before midsummer. Plants of *Micrampelis lobata* (Michx.) and *Sicyos angulatus* L. growing along streams by diseased cucumber fields were attacked by *Plasmopara Cubensis*, the former very extensively, the latter quite rarely. As for the assembled cucurbits, all the surviving species except *Benincasa cerifera* and *Cyclanthera explodens* were more or less freely attacked by the same fungus.

The Wayne county host plants for *Plasmopara Cubensis* are accordingly :

Cucumis sativus, *C. Melo*, *C. odoratissimus*, *C. erinaceus*, *Cucurbita pepo*, *C. Melopepo*, *C. verrucosa* (?), *Citrullus vulgaris*, *Lagenaria vulgaris*, *Coccinea Indica*, *Bryonopsis laciniola erythrocarpa*, *Mukia scabrella*, *Momordica balsamina*, *M. charantia*, *Melothria scabra*, *Trichosanthes colubrina*, *Sicyos angulatus*, and *Micrampelis (Echinocystis) lobata* ; not 1899]

Benincasa cerifera or *Cyclanthera explodens*. This *Plasmopara* has previously been reported upon five of the above named hosts, and upon *Cucumis Anguria* and *Cucumis moschata*; ¹ its appearance upon so large a number of new hosts has added interest to this part of the study. In every case the cucumbers and muskmelons were first attacked, then the other cucurbits. No plant outside the order has as yet been attacked by this *Plasmopara* and no oospores have been discovered here either for *Plasmopara Cubensis* or *Plasmopara australis* (Speg.), which was found in abundance on *Sicyos angulatus* and sparingly upon adjoining plants of *Micrampelis lobata* adjacent to a diseased pickle field. It may be further observed, that *Plasmopara Cubensis* (B. & C.) is clearly distinct from *Plasmopara australis* (Speg.) whether examined upon the same hosts (*Micrampelis* and *Sicyos*) or upon the different hosts of the former.

I shall be pleased to supply, as far as possible, to any mycologists who may desire them, specimens of these fungi upon the various hosts.—A. D. SELBY, *Ohio Agricultural Experiment Station, Wooster, Ohio.*

COPPER IN PLANTS.

COPPER is an element of very wide distribution in the bodies of plants, a matter which appears to be determined by the presence of the metal in the soil rather than by the exercise of any selective power. Specimens grown in ordinary soils may contain as much as 30^{mg} of this substance to each kilogram of dry matter, while those in rich soils may yield 560^{mg} from the same quantity of dry matter according to Lehman.² The wood of a tree, *Quercus macrocarpa* Michx., recently submitted to Professor Frankforter of this university for chemical analysis, was found to contain slightly less than 500^{mg} of copper to each kilo of dry matter. When the matter was called to the attention of the writer, the entire trunk and crown of the tree had been carried away, with the exception of a short stump from which the bark had been stripped. This rendered impossible any attempt to determine the distribution of the substance throughout the plant. It was evident, however, that it was dead before it had been cut down. The examination of the material at hand showed the copper in the form of finely divided,

¹ Stewart, Bull. N. Y. Expt. Station.

² Der Kupfergehalt von Pflanzen und Thieren in kupferreichen Gegenden. Archiv fur Hygiene 27: 1. 1896.